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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,387	01/29/2007	Sang-Jin Yoon	YHK-0156	1932
34610 7590 06/18/2008 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200				
EXAMINER				
MCCOMMAS, STUART S				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/565,387

**Applicant(s)**

YOON, SANG-JIN

**Examiner**

Stuart McCommas

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 9-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 9-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 9-12, 14-15, and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Takayama et al. (United States Patent 6,249,087), hereinafter referenced as Takayama.

Regarding claim 1, Takayama discloses a driving apparatus for a plasma display panel, comprising:

a set-up supplier (drive unit 80) for supplying a rising ramp waveform (V21y) to scan electrodes in an initialization period and for supplying a positive enhancing pulse (V31y) to the scan electrodes during an enhancing period following said initialization period (figure 1; figure 15);

a negative voltage supplier (drive unit 80) for supplying a falling ramp waveform (V22y) to the scan electrodes in the initialization period and for supplying a negative enhancing pulse (V32y) to the scan electrodes during the enhancing period (table 5; figure 1; figure 15).

Regarding claim 9, Takayama discloses a plasma display device comprising:

a plasma display panel (PDP) having scan electrodes and sustain electrodes to form a plurality of electrode pairs (figure 1);

a first driving circuit (scan driver 86) that initializes discharge cells by applying a first signal having a first gradually rising waveform ( $V_{2y}$ ) to the scan electrodes during a reset period ( $TR$ ) of at least one sub-field (figure 1; figures 3-4);

wherein the first driving circuit (86) applies a second signal having a second gradually rising waveform ( $V_{1y}$ ), which has a lower maximum voltage value than that of the first signal (table 5), to the scan electrodes before an address period of the at least one sub-field (table 5; figure 1; figures 3-4).

Regarding claim 10, Takayama discloses everything as applied above, further Takayama discloses that the lower maximum voltage value ( $V_{1y}$ ) is lower than a sustain voltage ( $V_s$ ) applied to the scan electrodes or sustain electrodes in sustain period of the at least one sub-field (tables 5-6; figures 3-4).

Regarding claim 11, Takayama discloses everything as applied above, further Takayama discloses that a difference of maximum voltage value between the first signal and the second signal is substantially the same as a sustain voltage applied to the scan electrodes or sustain electrodes in sustain period of at least one sub-field (tables 5-6; figures 3-4).

Regarding claim 12, Takayama discloses everything as applied above, further Takayama discloses that a slope of the first gradually rising waveform is substantially the same as a slope of the second gradually rising waveform (figure 4).

Regarding claim 14, Takayama discloses everything as applied above, further Takayama discloses that the first signal further comprises a first gradually falling waveform after the first gradually rising waveform (figure 15).

Regarding claim 15, Takayama discloses everything as applied above, further Takayama discloses that the second signal further comprises a second gradually falling waveform after the second gradually rising waveform (figure 15).

Regarding claim 19, Takayama discloses a method of driving a plasma display panel based on a plurality of sub-fields, the plasma display panel having a plurality of discharge cells, and each cell having a scan electrode and a sustain electrode (figure 1), comprising:

- providing a first signal to the scan electrode during an initialization period of at least one sub-field (figure 4).

- providing a second signal to the scan electrode after the first signal (figure 4).

- providing a scan signal to the scan electrode during an address period of the at least one sub-field, the scan signal being provided after the second signal (figures 3-4).

- providing at least one sustain signal to at least one of the scan electrode or the sustain electrode during a sustain period of the at least one sub-field (figures 3-4), wherein the first signal has a first peak voltage value, and the second signal has a second peak voltage value, wherein the first and second peak voltage values are different from each other (tables 5-6; figures 3-4).

Regarding claim 20, Takayama discloses everything as applied above, further Takayama discloses that the first signal has a first ramp-up signal, and the second signal has a second ramp-up signal (figure 4).

Regarding claim 21, Takayama discloses everything as applied above, further Takayama discloses that the first signal has a first ramp-down signal (figure 15).

Regarding claim 22, Takayama discloses everything as applied above, further Takayama discloses that the second signal has a second ramp-down signal (figure 15).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13, 16-17, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Takeda et al. (United States Patent Application Publication 2002/0075206), hereinafter referenced as Takeda.

Regarding claim 13, Takayama discloses everything as applied above, however Takayama fails to disclose wherein a ground voltage is applied to the sustain electrodes when the second gradually rising waveform is provided to the scan electrodes.

However the examiner maintains that it was well known in the art to provide wherein a ground voltage is applied to the sustain electrodes when the second gradually rising waveform is provided to the scan electrodes, as taught by Takeda.

In a similar field of invention Takeda discloses that a ground voltage is applied to the sustain electrodes when the second gradually rising waveform (A11) is provided to the scan electrodes (figure 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Takeda by specifically providing wherein a ground voltage is applied to the sustain electrodes when the second gradually rising waveform is provided to the scan electrodes for the purpose of suppressing discharge errors in the display by precisely controlling discharges to improve the quality of the display (paragraph 31).

Regarding claim 16, Takayama discloses everything as applied above, however Takayama fails to disclose wherein the first gradually falling waveform is provided until a voltage provided to the scan electrodes reaches a first voltage, the second gradually falling waveform is provided until the voltage reaches a second voltage value, wherein the first and second voltages are different.

However the examiner maintains that it was well known in the art to provide wherein the first gradually falling waveform is provided until a voltage provided to the scan electrodes reaches a first voltage, the second gradually falling waveform is

provided until the voltage reaches a second voltage value, wherein the first and second voltages are different, as taught by Takeda.

In a similar field of invention Takeda discloses wherein the first gradually falling waveform (A12) is provided until a voltage provided to the scan electrodes reaches a first voltage, the second gradually falling waveform (A13) is provided until the voltage reaches a second voltage value, wherein the first and second voltages are different (figure 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Takeda by specifically providing wherein the first gradually falling waveform is provided until a voltage provided to the scan electrodes reaches a first voltage, the second gradually falling waveform is provided until the voltage reaches a second voltage value, wherein the first and second voltages are different for the purpose of suppressing discharge errors in the display by precisely controlling discharges to improve the quality of the display (paragraph 31).

Regarding claim 17, Takayama and Takeda, the combination disclose everything as applied above, further Takeda discloses that the magnitude of the second voltage is greater than the first voltage (figure 5).

Regarding claim 23, Takayama discloses everything as applied above, however Takayama fails to disclose wherein a ground voltage is provided to the sustain electrode when the second signal is provided to the scan electrode.



However the examiner maintains that it was well known in the art to provide wherein a ground voltage is provided to the sustain electrode when the second signal is provided to the scan electrode, as taught by Takeda.

In a similar field of invention Takeda discloses that a ground voltage is provided to the sustain electrode when the second signal (A11) is provided to the scan electrode (figure 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Takeda by specifically providing wherein a ground voltage is provided to the sustain electrode when the second signal is provided to the scan electrode for the purpose of suppressing discharge errors in the display by precisely controlling discharges to improve the quality of the display (paragraph 31).

Regarding claim 25, Takayama discloses everything as applied above, however Takayama fails to disclose wherein a lowest voltage of first ramp-down signal is lower than a lowest voltage of the second ramp-down signal.

However the examiner maintains that it was well known in the art to provide wherein a lowest voltage of first ramp-down signal is lower than a lowest voltage of the second ramp-down signal, as taught by Takeda.

In a similar field of invention Takeda discloses that a lowest voltage of first ramp-down signal is lower than a lowest voltage of the second ramp-down signal (figure 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Takeda by specifically providing wherein a lowest voltage of first ramp-down signal is lower than a lowest voltage of the second ramp-down signal for the purpose of suppressing discharge errors in the display by precisely controlling discharges to improve the quality of the display (paragraph 31).

5. Claims 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Homma (United States Patent Application Publication 2002/0063663), hereinafter referenced as Homma.

Regarding claim 18, Takayama discloses everything as applied above, however Takayama fails to disclose wherein a voltage substantially similar to a sustain voltage provided to the scan or sustain electrodes during the sustain period is provided to the sustain electrodes when the first gradually falling waveform is applied to the scan electrodes.

However the examiner maintains that it was well known in the art to provide wherein a voltage substantially similar to a sustain voltage provided to the scan or sustain electrodes during the sustain period is provided to the sustain electrodes when the first gradually falling waveform is applied to the scan electrodes, as taught by Homma.

In a similar field of invention Homma discloses that a voltage substantially similar to a sustain voltage provided to the scan or sustain electrodes during the sustain period

is provided to the sustain electrodes when the first gradually falling waveform is applied to the scan electrodes (paragraphs 60-61; figure 9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Homma by specifically providing wherein a voltage substantially similar to a sustain voltage provided to the scan or sustain electrodes during the sustain period is provided to the sustain electrodes when the first gradually falling waveform is applied to the scan electrodes for the purpose of conserving power and improving brightness by using a common voltage value during both the initialization period and the sustaining period (paragraph 38).

Regarding claim 24, Takayama discloses everything as applied above, however Takayama fails to disclose wherein a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode.

However the examiner maintains that it was well known in the art to provide wherein a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode, as taught by Homma.

In a similar field of invention Homma discloses that a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode (paragraphs 60-61; figure 9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Homma by specifically providing wherein a sustain voltage is provided to the sustain electrode when the first signal is

provided to the scan electrode for the purpose of initiating a priming discharge and controlling wall charges to increase the quality of the display (paragraphs 12-13).

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571)272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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